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A Durkheimian Analysis of Youth Suicide in Canada

By

Frank Trovato*

*Department of Sociology
University of Alberta
Edmonton, Alberta, Canada
T6E 2H4

Population Research Laboratory
University of Alberta

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Abstract

Durkheim proposed that suicide varies inversely with the extent of social integration in the family, religious and political life. In this study, I examine the relationship between two of these sources of social integration on young Canadians' (age 15-29) suicide rate: family integration (as measured by divorce), and religious integration (as measured by the percent of the population reporting no religious affiliation). A third variable, as a proxy for economic anomie (unemployment) is also entered into the multivariate analysis, which includes additional controls for age, time period (1971 and 1981) and gender. The findings of this research provide strong confirmation for the hypothesis that religious detachment among the young is associated with increased proneness to commit suicide. Moreover, in 1981 (but not in 1971) the effect of family dissolution was positive and significant for both young men and women in Canada, adding partial confirmation for the family integration explanation of suicide. The results pertaining to unemployment are not consistent with the American based literature which calls for a significant and positive impact on the odds of self-destruction. It was found that for both sexes, in both time periods, job loss is inversely associated with suicide; however, this relationship is significant only for men in 1981.

INTRODUCTION

Over the last three decades, youth suicide has been reported to be on the rise in virtually all industrialized nations (Beneteau, 1990; Davis, 1983; Diekstra and Hawton, 1987; Hawton, 1986; Hendin, 1987, 1985; Peck et al., 1985; Lester, 1983; Sudak et al., 1984; Husain and Vandiver, 1984; Pfeffer, 1986; Barraclough, 1988; Stack, 1983; Bouvier-Colle et al., 1986). This phenomenon has consequently caught the attention of scholars in the social and medical sciences: Epidemiologists are interested in knowing the risk factors; medical and public health practitioners are concerned with prevention; psychiatrists look for psychiatric origins of the problem; and sociologists aim to explain the structural aspect of the suicide phenomenon.

In this study, I examine the effects of three important structural variables on the suicide propensities of young men and women in Canada aged 15-29, for two points in time, 1971 and 1981. The objective of the analysis is to test three hypotheses drawn from the classic work of Durkheim (1951), who proposed that suicide varies inversely with the degree of social integration in society. Although his theory is primarily concerned with adult suicide, I believe it is also applicable to explaining youth suicide. The core of Durkheim's thesis is that when the individual is detached from meaningful and enduring social ties, he/she is more prone to committing suicide. Durkheim specified three important sources of social integration for the individual: the institutions of family, religion, and work.[1] In the empirical analysis I employ proxies for these sources of youth suicide variation along with controls for age, sex and time period.

SUICIDE AMONG THE YOUNG

The suicide rate among young people aged 10-24 in industrialized countries has been increasing since the early sixties. A review of the evidence by Hawton (1986) indicates that in the United States, between 1960 and 1975, the suicide risk among 20-24 year olds rose by 130 percent. Since 1960, the suicide levels among 15-19 year olds have been on the increase by 140 percent. The rates for young men have showed the most marked change. Hawton (1986) reports that by 1981 there was an annual total of over 5,000 deaths by suicide among persons aged 15-24 in the United States. As is true in other parts of the world, suicide risk is pronounced among older teenagers and young men in their early twenties.

In Europe, the situation is very similar to that of the United States. In general,

most countries show a significant increase in the levels of youth suicide since the early sixties, with young men in the 20-24 age group experiencing the largest rates and increases over time.[2] Bouvier-Colle and associates (1986) studied the situation characterizing adolescent mortality in the European community from 1960 through 1980. They concluded that although traffic accidents account for most of the mortality of young people, suicide is still a leading cause of death for the young; their rates have increased in every country within the European Community.[3]

In Canada, the picture looks quite similar. Among person aged 15-24, suicide ranks as the second leading cause of death next to motor vehicle accidents. With respect to suicide trends, in 1960 the rates per 100,000 population among males aged 15 to 19 and 20 to 24 were 5 and 12 respectively. In 1986 the corresponding levels had reached 20 and 32 respectively. For young women in these age groups, the rates are considerably lower, but as is true for young men, show an increasing trend since the early sixties (Beneteau, 1990).

Although we have a clear understanding of the statistical fact that youth suicide has been increasing in the industrialized world, the causal factors for this phenomenon remain largely elusive. For example, Barraclough's (1988) study provides a descriptive overview of many nation's experience with this phenomenon, and concludes that very little can be inferred about the causes of variations across nations (p. 82). He states that it is customary to refer to the influence of religion and culture to describe differentials. He suggests that low rates of youth suicide are associated with Arab and Roman Catholic influences, implying that religion is a factor in the incidence of youth suicide.

Hawton (1986) discusses a number of structural and individual level correlates of this phenomenon. He mentions that religion is of particular relevance, but fails to provide a substantive account of how and why this may be the case. Of particular importance to this research, he discusses "changes in the social environment" since the early part of the sixties as contributing to the rise in young people's suicide propensities. He says: "there is no doubt that the social environment of young people in the West has undergone vast changes during the past three decades. One change has been the reduction in family ties, particularly as a result of the increasing divorce rate." Thus, the loss of family supports is a factor implied in the youth suicide literature (Husain and Vandiver, 1984; Haim, 1970).

Many studies in this area of research tend to be descriptive in nature and to attribute causation on the basis of univariate or bivariate statistical analyses. With the exception of the psychiatric literature focusing on the psychological autopsies of individuals that have committed suicide, few attempts have been made to relate youth-specific predictor variables to the incidence of youth suicide in a multivariate context.[4]

In the present analysis, I relate youth age-sex specific variables such as divorce, religious disaffiliation, and unemployment among young people aged 15-29, to their age-sex specific suicide propensities for 1971 and 1981. To the best of my knowledge, with the exception of Stack (1983, 1985), no other study concerned with the sociological determinants of youth suicide has employed this type of data design in the context of a multivariate statistical framework. Stack's (1985) study of suicide among persons aged 15-19 in the United States between 1954 and 1979 is a macro level time series design which links aggregate level structural variables to the aggregate youth suicide rate. Similarly, his (1983) analysis is based on a time series design spanning the years 1954 to 1978. The main difference between his studies and the present one is that mine is at a lower level of aggregation since all the data pertaining to the youth are age-sex-period specific. In this sense, this study provides us with some basis to guard against the possibility of the ecological fallacy since the data are at a lower level of aggregation then those employed in previous macro level analyses of the youth suicide phenomenon (see also Breault, 1986 for a similar argument).

RELIGIOUS INTEGRATION AND YOUTH SUICIDE

The importance of religion as a predictor of suicide has been mentioned repeatedly in the literature. However, relatively little has been said about the causal mechanisms that serve to protect the young religious individual from committing suicide. In the Durkheimian formulation of adult suicide, prominence is given to Catholicism as a form of collective community that provides greater social integration than other religious denominations such as Protestantism (Breault, 1986). Authors have recently revised Durkheim's early theory of religion and suicide since the empirical evidence has suggested that denomination may be no longer relevant in differentiating suicide rates. Rather, it has been suggested that the key to understanding the influence of religion on suicide risk lies in the notion of social networks (Pescosolido, 1990; Pescosolido and Georgianna, 1989). That is, those religions which promote the establishment of enduring social networks with a high degree of social and emotional supports for its members tend to exhibit relatively low suicide rates. Catholics are placed in the intermediate level of network density by Pescosolido and Georgianna (1989), which means that the individual in this social context has the dual benefit of having access to enduring social ties whenever he/she requires support, while at the same time the individual has the freedom to be separated from the potentially overwhelming and restrictive demands of religion. In their revision of Durkheim, Pescosolido and Georgianna (1986) argue that this fact is responsible for Catholics' relatively low suicide rate.

Moreover, these authors propose that being detached from religion (such as in the case of atheists) or being too immersed in the religious life (such as in the case of greedy cults) poses a heightened risk of suicide for the individual. In the case of the atheist, the individual is isolated from the collective life of religion and resorts to his/her own devices when things go wrong in life, hence the atheist is more likely to commit egoistic suicide. In the case of those who are overly committed to some religions (e.g. greedy cults), they are subject to overregulation, and hence more likely to commit fatalistic suicide.

As has been argued by Breault (1986), and by Pescosolido (1990), this reformulation is not contrary nor totally distinct from Durkheim's own ideas on the role of religion in the occurrence of suicide. The essence of the reformulation is basically the same: the greater the intensity of collective life, the greater the degree to which the individual is socially integrated to his/her social group. For the most part, organized religion serves as the basis for many individuals to form social networks, and the more enduring and meaningful the interactions among members, the lower the risk of suicide. Pescosolido (1990), has also argued that the structural context conditions the effects of religion on suicide. For example, in geographic areas (counties) where a religious group is strongly established, co-religionists have a wide range of opportunities to form social networks due to the availability of making social contacts. In areas where a given religious denomination is underrepresented, co-religionists are relatively few, and therefore, have limited opportunities to establish enduring social ties. Thus, the protective effect of religion on suicide depends on the structural context. While I agree with this interpretation, my main concern is to argue that irrespective of structural context, individuals who have no attachment to a religious group are more likely to be socially isolated and hence possess relatively few enduring social ties. It is this condition which serves to aggravate the chances of suicide for those who are religiously non-affiliated.

This view is consistent with Pescosolido and Georgianna's (1989) formulation concerning religious affiliation, network density and suicide risk. These authors placed atheists in the high suicide-low network density axis of their typology, indicating that suicide potential increases among persons who are non-believers who do not belong to an organized religious denomination.[5]

In Canada, there is evidence that the proportion of people with no religious affiliation has been on the increase over the years. (Trovato, 1987b, 1989; Pryor and Norris, 1988). In 1971, the census indicated that 4.3 percent of all Canadians responded "no religious affiliation" to the question "What is your religion?" In 1981, this proportion rose to 7.3 (Pryor and Norris, 1988). The largest increase in "no religion" over the two censuses was recorded for the age group 20-29 (Pryor and

Norris, 1988).

Of course, these data cannot tell us whether the non-religiously affiliated in the census may be atheists or possibly privately religious people (Bibby, 1987).[6] What is important, from a Durkheimian perspective, is the fact that persons who detach themselves from the collective life of religious observance place themselves in a greater risk of self-destruction. In other words, whether one is a non-believer or is a private religionist, the effect on suicide potential is considered to be similar since such individuals are lacking in social integration. Moreover, Durkheim (1951) argued that religion does not protect the individual from suicide because of its inherent dogmas, but because religion is itself a society with common beliefs and attitudes that bind its followers into an integrative and regulated collectivity: "The more numerous and strong these collective states of mind are, the stronger the integration of the religious community, and also the greater its preservative value" (Durkheim, 1951: 170). Breault (1986), in his extensive analysis of county suicide rates in the United States between 1933 and 1980, lends empirical support to this proposition. In his multivariate analysis he found that church membership is one of the strongest predictors of suicide variation over time. A similar conclusion is given by Stack (1983), who found that among 15-19 year olds in the United States, church attendance is the strongest predictor of suicide once the effects of unemployment, military participation, and social security income are held constant.

Given these considerations on the Durkheimian link between religion and suicide risk, the first hypothesis of this study is that the greater the degree of religious individualism, as measured by the proportion of the youth population that reports no religious affiliation, the higher their suicide rate.

DOMESTIC INTEGRATION AND YOUTH SUICIDE

There exists a strong relationship between measures of domestic integration and suicide at the macro level of analysis (Gibbs and Martin, 1964; Stack, 1982, 1987, 1990; Trovato, 1987a, 1987b, 1986; Wasserman, 1984a, 1984b; Breault, 1986). Divorce has been used as proxy for Durkheim's concept of declining family integration because it represents a loss of family regulation and integration for the individual in society. Research has shown that divorce is associated with not only an increased risk of suicide, but also with a greater likelihood of morbidity and of death from other causes (Kitson and Morgan, 1990; Dwyer et al., 1990; House et al., 1988).

Concerning the association of divorce with youth suicide, much of the relevant literature suggests that the erosion of the centrality of the family in people's lives is partly responsible for the recent rise in youth suicide in the Western world. Since the

early sixties, a growing number of young people have, indeed, witnessed the dissolution of their families through parental divorce (Fustenberg, 1990).[7] For some youngsters, the break-up of the family represents an irrecoverable trauma that may persist throughout the life of the individual (Amato and Booth, 1991; Fustenberg, 1990; Hallstrom, 1987, 1987). According to Davis (1983), studies on broken homes and youth suicide indicate that "[t]he disintegration of the family structure is manifested through an increase in suicidal behavior by the adolescent family members. The studies reviewed repeatedly evidenced more suicidal behavior in broken families. From this research it appears there is a strong relationship between the breakdown of the. . .family and the increased number of adolescent suicides." Hawton (1986:47) elaborates on the causal mechanisms involved in this relationship:

"[I]t is often apparent that there has been a major disruption in the young suicide's background, through death or separation of parents, so that important family supports may be lacking. . . When faced by an acute stress, such as the break-up of an important relationship. . . the young person, feeling abandoned, may contemplate suicide as an acceptable option."

Undoubtedly, divorce is potentially traumatic for all family members. Therefore, it is not surprising that the literature demonstrates a direct relationship between family dissolution and suicide. However, the youth-suicide literature typically implies that it is parental separation that causes young people to commit suicide. It has not yet been demonstrated whether the dissolution of young people's own marriages is a cause of youth suicide. On the basis of the overall evidence, I assume that the divorce-suicide relationship established in the general literature also prevails among the young. For this reason, this study examines how divorce among people aged 15-29 influences the risk of committing suicide among persons in this age range. It must be understood that this study is not concerned with how parental divorce affects young persons suicide potential; rather, we are interested in testing the hypothesis that among young adults, the higher their divorce rate, the higher will be their rate of suicide. The question of how parental divorce may affect youth suicide is left for another investigation.

ECONOMIC ANOMIE AND YOUTH SUICIDE

A third variable in this analysis is included as a proxy for economic anomie. Although Durkheim (1951) viewed economic crises and booms in society as significant sources of disruption of the social order, many contemporary researchers use the unemployment rate as an indicator of economic anomie (Stack, 1982). The use of this variable, as a proxy for economic anomie, assumes that loss of employment for the

individual entails significant disruption of social roles and relationships with others (e.g., in the workplace and in the family).

The micro level literature concerning this variable's impact on suicide suggests that unemployed persons do seem to be more suicidogenic than those employed. At the aggregate level, findings tend to be inconsistent (Platt, 1984; Boor, 1980; Stack, 1981; Stack and Haas, 1984; South, 1984); and in some cases, unemployment has been found to be statistically nonsignificant (Breault, 1986). These inconsistencies may be due to several reasons. For example, Boor (1980) found a positive association between the unemployment rate of certain countries and their rate of suicide. However, this result is questionable since Boor confined his analysis to the zero-order correlations and did not perform a multivariate analysis. Breault (1986) included unemployment as well as other predictors of suicide in his study and discovered that unemployment was not consistently significant in predicting United States suicide rates over time and at different levels of aggregation (i.e., county vs. state level).

Another reason why unemployment may not show the expected positive influence on suicide has to do with its adequacy in capturing what Durkheim called anomie. It may be that in certain contexts unemployment forces people to rely on the family and friends as a coping mechanism, thereby actually increasing one's social integration. In Canada, the possibility also exists that the level of job loss is not high enough to significantly affect suicide propensities. It is not always certain what effect unemployment will have on suicide (e.g., Stack, 1982), but since it has been used frequently in the suicide literature, and some analysts have posited it has a positive effect on suicide, it is anticipated that the higher the unemployment level for young people, the higher their suicide rate.

DATA AND METHODS

The suicide counts were taken from a special tabulation from Statistics Canada, which includes the number of suicides by age, sex and province for the 1971 and 1981 Census periods. The populations at risk were extracted from published Census tabulations. Age-sex- province specific data concerning divorce, religious disaffiliation and unemployment were obtained from four sources: the Public Use Sample Tapes of the 1971 and 1981 Censuses of Canada, published Census tabulations, published Vital Statistics, and from a Vital Statistics special tabulation. These variables were appended to the suicide and population counts by age, sex and province for the two points in time to form an integrated data set.

Since the focus of this study is on young people aged 15-29, the analysis includes three age classes: 15-19, 20-24 and 25-29. The total number of data lines in the data

file is, therefore, 108 (3 age groups x 2 sex groups x 9 provinces x 2 periods = 108 lines of data).

Concerning the concepts of domestic and religious integration, the former is measured by the age-sex specific divorce rate per 1000 population. The 1971 divorce rates were obtained by special request from Vital Statistics. The 1981 divorce rates were taken from published Vital Statistics volumes.

Religious integration is measured by the proportion of persons in each age-sex-specific category that reported, "no religious affiliation" in the census. It is felt that this variable provides a reasonable measure of the extent to which individuals are detaching themselves from the religious community. It is assumed that for the person who says he/she is not religiously affiliated, there is a loss of religious integration; that is, the person lacks enduring social ties found in the religious collectivity (Pescosolido and Georgianna, 1989; Breault, 1986; Dwyer et al., 1990). In this connection, Durkheim (1951:170) argued that:

"If religion protects man against the desire for self-destruction, it is not that it preaches the respect for his own person to him with arguments su generis; but because it is a society, what constitutes this society is the existence of a certain number of beliefs and practices common to all the faithful, traditional and thus obligatory. The more numerous and strong these collective state of mind are, the stronger the integration of the religious community, and also the greater its preservative value. The details of dogmas and rites are secondary. The essential thing is that they be capable of supporting a sufficiently intense collective life."

It is in this sense that the variable "no religious affiliation" is adopted as a proxy for loss of religious integration. It is recognized, however, that this empirical measure perhaps taps only a small part of what Durkheim conceived to be a decline in religious integration. Due to the unavailability of more refined empirical indicators of religious integration that would be suitable for this analysis, the "no religion" variable is considered very useful for the purpose of this study.

Economic anomie is measured by the ratio of unemployed persons to those employed within each age-sex specific category in the data file.

The statistical methodology used is based on a multivariate model suitable for the analysis of rare events such as suicide. A Poisson regression model is specified (Clogg and Eliason, 1988; Haberman, 1979; Agresti, 1990) by sex and time period of the form:

$$\text{Log}\left(\frac{S_i}{P_i}\right) = \lambda + \sum_{i=1}^{K} \lambda_{age} + \lambda_{norelig} + \lambda_{divorce} + \lambda_{unemployment},$$

where S_i = the suicide counts by age, λ = a baseline hazard, λ_{age} = the parameters for the age groups (K=3), and the remaining parameters (all continuous variables) are self-explanatory. Although the equation is expressed in additive form, it can be converted to its multiplicative form by taking the antilogarithm of each term. Note that although the suicide and population counts are province-specific, province is not included in the equation. Thus, the unit of analysis in this study is the gender-age-period specific cells in the multiway tabulation.

RESULTS

Table 1 shows suicide rates by gender for 1971 and 1981. Suicide has increased for both sexes over the ten year interval, but more so for males. In 1971, males had a suicide risk of 19.61 per 100,000 population, while in 1981 they showed a rate of 32.02, representing a 63 percent increase over the 1971 rate. Females in 1971 had a suicide rate of 4.74; and in 1981 their level was 6.66, for a 40 percent change over the decade. The largest increase in suicide has occurred among young men aged 15-19 (81%), whereas among women, the largest change occurred to those aged 25-29 (47%).

The overall ratio of male to female suicide rates is over four in both periods (4.14 in 1971, and 4.81 in 1981). This ratio has increased over the two time points in the age groups 15-19 and 20-24, declining slightly among persons aged 25-29.

Table 2 displays zero-order correlations and corresponding descriptive statistics for the variables in this analysis. Overall, it can be seen that both sexes have experienced increased levels of not only suicide over the 10 year interval, but also in divorce, unemployment, and religious individualism.

For males, all variables' association with suicide are in the anticipated direction with the exception that the correlation of divorce with suicide is negative in both time periods. Also, unemployment is positively related to suicide in 1971, but inversely related in 1981. It is interesting to note that unemployment and "no religion" are positively associated in 1971, but inversely linked in 1981. Also, in both time periods, unemployment and divorce are inversely related (the correlation remained virtually unchanged). The zero-order correlation between divorce and "no religion" remained positive in both 1971 and 1981, but reduced in magnitude in the latter point of observation (from .529 in 1971 to .369 in 1981).

TABLE 1. SUICIDE RATES (Per 100,000) FOR YOUNG MEN AND WOMEN IN CANADA, 1971 AND 1981

Age	1971			1981			Percent Change 1971-1981	
	Men	Women	Ratio M/F	Men	Women	Ratio M/F	Men	Women
15-19	13.94	3.11	4.48	25.21	4.54	5.55	+80.85	+45.98
20-24	23.63	5.65	4.18	39.55	6.97	5.67	+67.37	+23.26
25-29	21.83	5.81	3.76	31.18	8.55	3.65	+42.83	+47.16
TOTALS	19.61	4.74	4.14	32.02	6.66	4.81	+63.28	+40.51
(N suicides)	(526)	(130)		(904)	(184)			

TABLE 2. ZERO-ORDER CORRELATIONS AND DESCRIPTIVE STATISTICS, 1971 AND 1981

Males							1971	
Variables	Suicide	Age 15-19	Age 20-24	Norelig	Divorce	Unemp	$\bar{X}$	SD
Suicide	1.000	.133	-.059	.456*	-.024	.115	24.505	33.641
Age 15-19	.166	1.000	-.500*	-.261**	.579*	.581*	.333	.480
Age 20-24	-.029	-.500	1.000	.145	-.199	-.176	.333	.480
Norelig	.452*	-.206	.035	1.000	.529*	.354*	6.563	5.431
Divorce	-.078	-.641*	-.272**	.369*	1.000	-.653*	2.902	3.601
Unemp	-.232	.675*	-.195	-.529*	-.607*	1.000	15.882	11.783
1981 $\bar{X}$	63.234	.333	.333	9.626	4.881	24.663		
SD	10.419	.480	.480	7.973	5.446	20.860		

* $P \leq .05$
** $P \leq .10$

TABLE 2. (CONTINUED)

Females

Variables		Suicide	Age 15-19	Age 20-24	Norelig	Divorce	Unemp	1971 $\bar{X}$	1971 SD
Suicide		1.000	-.274**	.140	.663*	.418*	-.251**	4.236	3.933
Age 15-19		.069	1.000	-.500*	-.137	-.674*	.513*	.333	.480
Age 20-24		-.104	-.500*	1.000	.102	.039	.426*	.333	.480
Norelig		.761*	-.112	.019	1.000	.537*	-.135	4.226	3.751
Divorce		.195	-.759*	-.059	.337*	1.000	-.614*	4.164	4.241
Unemp		-.308*	.719*	-.258**	-.441*	-.676*	1.000	15.819	10.576
1981	$\bar{X}$	12.618	.333	.333	7.078	7.186	26.744		
	SD	16.102	.480	.480	6.321	6.576	21.192		

NOTES: Correlations above the diagonals correspond to 1971; those below the diagonal are for 1981.

The Suicide means in this table are different from the suicide rates in Table 1 because in Table 1 we report the rate, while in Table 2, we report the average of the age-specific rates for young men and women, so the two figures cannot be the same.

The Reference Group for the two age dummy variables (Age 15-19, Age 20-24) is Age 25-29.

* $P \leq .05$
** $P \leq .10$

The correlations describing female suicide indicate that in both time periods "no religion" is strongly linked to suicide. The greater the proportion reporting no religious affiliation, the higher the suicide risk. This correlation has increased in magnitude from .663 in 1971 to .761 in 1981. However, the positive relationship of divorce with suicide has diminished in magnitude from .418 in 1971 to .195 in 1981. In both periods, unemployment is inversely related to suicide, the strength of association being stronger in 1981. As is the case for males, unemployment and divorce are inversely related in both 1971 and 1981. Unemployment and "no religion" are also inversely related over these points of observation, but the magnitude of the coefficient increased over time.

The log-rate analyses are presented in Tables 3 and 4. The four equations explain between 42 and 58 percent of the variance in the odds of suicide among young people in Canada. The results in Table 3 corresponding to male youths indicate that in 1971 the 15-19 year olds had a reduced relative risk of suicide in comparison to their 25-29 year old counterparts. By 1981 a reversal in the age effects is evident in that young men between 15 and 24 experienced a greater risk of suicide than men aged 25-29.

This change in age effects may be a reflection of increased problems among young males in Canada with the advent of the late seventies and early parts of the eighties. Since the age effects are independent of religious individualism, divorce and unemployment, one may surmise that other factors, perhaps related to these predictors, may have been partly responsible for the change in age effects. For example, the increased use of alcohol and drugs may be important contributors to young men's rising risk of suicide since 1971.

The effects of religious individualism, as reflected by the "no religion" measure, are positive in both time periods, increasing slightly in 1981 (λ = .041 and .051, respectively). These results lend support to the thesis that an increase in religious disaffiliation is directly linked to increased risk of suicide among young men. These findings are consistent with Stack's (1983) analysis of the suicide phenomenon among youths in the United States. He discovered that religious attendance has followed a sharp decline since the early fifties; and correspondingly, young men's suicide rates have risen considerably during this interval of time. The situation in Canada between 1971 and 1981 seems to be similar. It would be useful in future study to introduce more direct measures of religious integration. Unfortunately, this task that may be difficult, given the lack of such detailed data.

TABLE 3. LOG-RATE EQUATIONS FOR MALE YOUTH SUICIDE IN 1971 AND 1981, CANADA

	1971			1981		
	λ	Z	e^{λ}	λ	Z	e^{λ}
Intercept	-8.56314		.0001910	-8.088539		.0003070
Age						
15-19	-.18663	-1.33***	.82975	.66884	3.16*	1.95197
20-25	.06596	.79	1.06818	.45102	4.34*	1.56991
25-29 (R)						
Norelig	.04065	3.08*	1.04149	.05092	7.23*	1.05224
Divorce	-.03515	-1.05	.96546	.12204	3.16*	1.12979
Unemp	-.00845	-1.13	.99159	-.00855	-1.91**	.99149
L^2_B(df)	96.23 (26)			497.06 (26)		
L^2_m(df)	51.75 (21)			290.91 (21)		
R^2_A	.462			.415		

NOTES: The intercept term reflects the suicide rate of persons aged 25-29, given their parameter values and corresponding statistics (means) for this age group. Z test not computed for the intercept.

(R) = Reference
R^2_A = $1-(L^2_m/L^2_B)$, where L^2_m = model Log-Likelihood Chi-Square; L^2_B = baseline Log-Likelihood Chi-Square.
df = Degrees of freedom.
* $P \leq .01$
** $P \leq .05$
*** $P \leq .10$

TABLE 4. LOG-RATE EQUATIONS FOR FEMALE YOUTH SUICIDE IN 1971 AND 1981, CANADA

	1971			1981		
	λ	Z	e^{λ}	λ	Z	e^{λ}
Intercept	-9.99534		.000456	-9.85878		.0000523
Age						
15-19	-.43615	-.96	.64652	.83414	1.80**	2.30283
20-25	.04472	.24	1.04574	.13490	.99	1.14442
25-29 (R)						
Norelig	.11953	3.82*	1.12697	.06726	3.60*	1.06957
Divorce	-.07314	-1.44***	.92947	.13738	2.41*	1.14726
Unemp	-.01428	-.54	.98582	-.00624	-.67	.99378
L^2_B(df)	47.74 (26)			147.42 (26)		
L^2_m(df)	19.89 (21)			81.01 (21)		
R^2_A	.583			.450		

NOTES: Refer to Table 3

* $P \leq .01$
** $P \leq .05$
*** $P \leq .10$

The influence of divorce on the male suicide rate is inverse in 1971 and positive in 1981. However, the effect is statistically insignificant in the earlier period. Thus it would appear that marital break-up has become an important contributor to young men's suicide propensities in the early part of the eighties. It may be that in 1971 there were too few divorces experienced by young people to have much of an impact on suicide rates.

A similar situation is evident in connection with the effects of unemployment on young men's suicide risk over time. In 1971, the effect on suicide is negative and insignificant while it is negative and significant in 1981. What might explain this unexpected inverse relationship is that in the early eighties unemployment in Canada was quite high. Perhaps it became a common experience for many young men and it forced them to seek the support of family and friends to such a degree that it contributed to greater levels of social integration than anticipated by our hypothesis. Some support for this speculation is given in the correlation matrix in Table 2. In 1971, unemployment and "no religion" were positively related. In 1981, this association is inverse, suggesting that perhaps the experience of job loss in 1981 may have contributed towards the establishment of a greater link to religion than would have been the case during other times. Moreover, there is an indication that unemployment is inversely linked to divorce, thus supporting the notion that the loss of work may be a stimulus to seek other sources of integration such as turning to religion and strengthening family bonds.

The log-rate equations pertaining to young women's suicide risk are presented in Table 4. The age effects in 1971 are statistically insignificant, while in 1981, the age group 15-49 demonstrates a significant effect on self-murder. This age segment's relative risk is over two times that of women aged 25-29 (RR = 2.30). The reasons for this effect may have to do with problems associated with young teens in society. As is true for young men, young women in contemporary society have been increasingly engaging in risky behaviours which were at one time associated exclusively with males, namely, the use of drugs and alcohol, which have some relationship with suicide probabilities (Motto, 1980).

Independent of age, divorce and unemployment, the effect of religious individualism on suicide is positive in both time periods, providing further confirmation for the hypothesis that religious integration is an important factor in youth suicide. The magnitude of the main effect of "no religion" on suicide reduces in 1981. From Table 2, it would appear that the major reason for this outcome is the increasingly negative association since 1971 of unemployment with "no religion." That is, an increase in unemployment over the decade has led young women to be more religiously integrated (fewer of them reporting "no religion") and therefore, the effect

of religious individualism on suicide is weaker in the latter period.

The hypothesis respecting family integration and suicide receives only partial support. As was discovered for young men, in the case of young women in Canada the expectation was that the relationship of divorce with suicide would be positive (Stack, 1990, 1985, 1980; Trovato, 1986, 1987). The statistical results offer support for this thesis only for 1981, but not for 1971. The reasons for the inverse relationship in the earlier period may have to do with the large correlation in 1971 between divorce and "no religion." That is, during the early period, the religiously unaffiliated had a greater propensity to divorce and since "no religion" is directly linked with suicide, the net effect of divorce on suicide became negative. However, by 1981, divorce became more widespread in society and religious disaffiliation became less important in the incidence of family dissolution; therefore, in 1981 the correlation between "no religion" and divorce weakened, and hence, the effect of divorce on suicide became positive.

Another plausible explanation for the reversal in the sign of the divorce effect on suicide may have to do with the fact that prior to 1968 divorce in Canada was very difficult to obtain; and as a consequence of new legalistic developments, the divorce rate during the early seventies skyrocketed to unprecedented levels. Perhaps for a large number of young couples during the late sixties and early seventies, divorce represented a long awaited relief from marriages gone wrong years earlier. Insofar as this is an accurate reflection of reality, in 1971 the occurrence of divorce probably served to relieve built-up frustrations and tension among many young couples, possibly accounting for the inverse relationship noted in the 1971 equation.

By 1981, the legalistic situation had stabilized and the period-specific divorce rates more accurately reflected current levels of family dissolution; for most couples it became no longer necessary to wait an indefinite period of time before legal divorce could be granted. Therefore, in contrast to the earlier context, in 1981 loss of social integration to the family institution (divorce) resulted in higher rates of suicide for young women in Canada.

From the results in Table 4 we are led to conclude that unemployment is of limited importance in explaining young women's suicide propensities. Although this variable shows an unexpected inverse effect on the odds of suicide, the magnitude of the parameter remains statistically insignificant. This outcome may be a reflection of Canada's generous unemployment insurance system, where the unemployed are guaranteed some degree of government assistance, thus dampening the hardships of job loss. It is also possible that unemployment induces persons to seek help from family, friends and community networks, contributing to an increase, rather than a loss of social integration, and therefore accounting for an inverse association with suicide. These interpretations must remain tentative, however, because more study is needed

to better understand the effects of job loss on suicide.[8]

CONCLUSION

The results of this investigation lend strong support for the Durkheimian proposition that the more the individual is detached from the religious community, the greater the loss of social integration, and therefore, the higher the odds of self-inflicted death. Even after controls for time period, age, sex, divorce and unemployment were considered in this analysis, the main effect of religious disaffiliation on suicide is positive and significant. The increasing trend among young Canadians towards the abandonment of institutionalized religion is linked to more people taking their own lives. It would be important to monitor this relationship in the future as society becomes increasingly secular. Our finding regarding the importance of religious involvement in the incidence of suicide is consistent with the results of Stack (1985) in the United States, where it was established that religious and domestic individualism accounts for a growing number of suicides among young adults. The concomitant trends of rising religious detachment and family dissolution in the contemporary industrialized world are central determinants of the increased incidence of suicide among young people. It may be hypothesized that similar factors are responsible for the reported rise in child suicide in the industrialized world in recent decades (Hawton, 1986; Husain and Vandiver, 1984; Pfeffer, 1986, 1986; Diekstra and Hawton, 1987; Sudak et al., 1984). This phenomenon deserves more attention, and in future work it would be fruitful to execute an analysis of childhood suicide keeping in mind that to a large extent, childhood suicide is perhaps largely a function of parental and family factors; that is, family integration and religious integration.

FOOTNOTES

1. Durkheim argued that political integration is also important in reducing suicide risk in society. He showed that during time of political crises, such as war, the national suicide rate declined. During such times the collectivity is engaged in a common crisis, taking away the tendency for individuals to commit suicide.

2. Hawton (1986) reports on the situation in England and Wales during the sixties through the early eighties. The official statistics seem to indicate a small decline in youth suicide since 1960. He speculates that this is not a true reflection of reality since many suicide cases among the very young tend to be reported as "undefined" or "death by poisoning" or "injury." Once appropriate adjustments for these possible sources of bias are made, the estimated suicide rates of young people in England and Wales show a marked increase over time.

3. In a more exhaustive analysis, involving all countries contained in the World Health Organization Statistical Annuals for 1973 to 1985, Barraclough (1988) concluded that if the average rate for all the countries is considered, there appears to have been a period of increasing risk among the young in the mid and late seventies. However, there is considerable variation in this trend when individual countries throughout the world are considered.

4. Typically, authors will argue that conditions in the social environment cause youth suicide. For example, Hawton (1986) posits that the increase in divorce and the increased availability of drugs in society may be causal factors of youth suicide. Others tend to offer similar explanations for this phenomenon (e.g., Haim, 1970; Husain and Vandiver, 1984; Davis, 1983; Parker, 1974; Farmer and Hirsch, 1980).

5. The formulation predicts that member of "greedy cults" would also share high suicide rates. Presumably, in such instances, the individual is totally subordinate to the authority structure of the cult and would be prone to what Durkheim called fatalistic suicide. From the perspective of my study, I would argue that this form of suicide is rare (as did Durkheim), and would, therefore, be of minimal relevance to the objectives of this analysis.

6. It is likely that the increase in "no religion" reflects, in part, a growing tendency among Canadians to resort to private religion. That is, people may detach themselves from organized religious institutions without necessarily losing their belief in God and prayer. It is possible that some people may have become increasingly disenchanted with organized religion and have decided to practice religion privately (Bibby, 1987).

7. Since mortality conditions have been improving significantly overall, the dissolution of most children's families in the contemporary world is caused primarily by parental divorce rather than the early death of a child's parent(s).

8. Judging from the consistency of unemployment's effects on suicide, for both sexes being negative and largely insignificant (except for men in 1981), there is no empirical evidence in this study to suggest that unemployment is an important cause of young men's and women's predisposition to commit suicide. These results do not conform to studies based on the American context. For example, Wasserman (1984a, 1984b) found that unemployment is positively related to the monthly suicide rate in the United States. Stack (1985) determined that job loss among the young is positively linked to the rate of suicide between 1954 and 1978, even after controls for other relevant variables were taken into account. In his more recent analysis involving a time series study of suicide in the United States, Stack (1987) found that unemployment may have a significant positive effect on males, but not on females aged 20-39. But it was discerned that the effect of job loss is significant only between 1948 through 1963, and not after this time period. Breault (1986), in his extensive analysis of suicide in America, found that at the state level, unemployment was not a significant predictor of suicide after 1950, and that at the county level of analysis, this variable was statistically unimportant. Vidgerhous and Fishman (1978) reported that the association between unemployment and suicide (male rate) was strongest prior to World War II in the United States. Studies by economists (Hamermesh and Soss, 1974; Shapiro and Ahlberg, 1982-83; Ahlberg and Shapiro, 1984) indicate that suicide, especially the male rate, is highly sensitive to economic cycles.

   Studies outside the United States generally confirm the positive unemployment-suicide relationship (Stack, 1990; Boor, 1980; Hawton et al., 1988; Pritchard, 1988), but the evidence for Canada remains inconclusive. Adams (1981), in his time series analysis of Canadian data found an inverse net effect of unemployment on suicide, even after sufficient time lags were

considered in the model. A study by Cormier and Klerman (1985) based on Quebec Province, reports that suicide is directly linked to unemployment, but since the authors do not show the regression coefficients for unemployment, it is difficult to verify the direction of effects. Trovato (1987a) showed that between 1951 and 1985 unemployment in Canada was either statistically insignificant or it had a negative effect on suicide. The Canadian case concerning job loss and suicide appears to differ from that of the United States. Our sense is that a country's unemployment assistance program may be an important conditioning factor in the incidence of suicide, and that perhaps the level of unemployment in Canada is seldom of such a magnitude to affect suicide propensities significantly.

It is worth noting that in the majority of studies in which unemployment and divorce are used as predictors of suicide, as is the case in the present investigation, the rate of family dissolution tends to have a stronger impact on the dependent variable (see Vidgerhous and Fishman 1978, for an exception to this). The persistence of this empirical relationship has led Wasserman (1984) to conclude that divorce in society reflects a weakening of the family and kinship system, which in turn, has a more devastating effect than unemployment. Similar conclusions can be extracted from the work of Stack based on the situation in the United States and in other parts of the world (Stack, 1985, 1980, 1981, 1984, 1987, 1990). It is possible that a new specification of the way unemployment affects suicide is necessary. It may be that causally, unemployment is a precursor of divorce and has an indirect effect on suicide. This may account for family dissolution's stronger relationship to self-inflicted death. Future research will benefit from the utilization of causal modelling to test this proposition.

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